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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Maurice Gell

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CANTOR COLBURN, LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER

SAVAGE, JASON L

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

12/12/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

Office Action Summary	Application No. 10/755,856	Applicant(s) GELL ET AL.	
	Examiner JASON L. SAVAGE	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8-18-08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21, 23, 25-32, 34, 36-38, 40, 43-48, 50, 52-63 and 65-68 is/are pending in the application.
- 4a) Of the above claim(s) 1-15, 32, 53-62 and 65-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-21, 23, 25-31, 34, 36-38, 40, 43-48, 50, 52 and 63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 25 and 63 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Both of the claims recite that the material or a layer of the material contains inter pass boundaries while another portion of the material or layer of the material does not have inter pass boundaries.

However, there does not appear to be any teaching of how to prevent the formation of an inter pass boundary in a layer containing splats having the claimed size or in a portion of a material layer that would allow one of ordinary skill in the art to make and/or use the invention as claimed.

Applicant discloses in paragraph [0023] of the specification that a typical flame spray has two spray zones including a hot zone and cool zone and that injecting the precursor material primarily (emphasis added) into a hot zone forms splats having the reduced splat size. Applicant also states that it is believed that non-liquid material formed in the cool zone contributes to the creation of certain microstructures such as inter pass boundaries in paragraph [0021]. However, Applicant does not provide any

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additional disclosure for the processing parameters or conditions which would be necessary to form or prevent the formation of inter pass boundaries in the layers or areas such as recited in the claim. Based on the disclosure by Applicant that typical flame spraying devices include a hot and cool zone and the cool zone is believed to contribute to forming non-liquid material for an interpass boundary, it is the position of the Examiner that the precursor material which contacts the cool zone during the plasma spray deposition would inevitably form a resultant inter pass boundary.

As such, it is not clear how one of ordinary skill in the art would be able to obtain the recited material or layers which have an absence of the interpass boundaries such as claimed.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 16-21, 23, 26-31, 34, 36-38, 40, 43-48, 50, 52 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Padture et al. (Acta Mater. 49 (2001) 2251-2257 – article “Towards Durable Thermal Barrier Coatings with Novel Microstructures Deposited by Solution Precursor Plasma Spray”).

With respect to claims 16-18 Padture discloses a thermal sprayed coating comprising containing novel microstructures which is formed by solution precursor plasma spray (abstract). During the interview with Dr. Gell's on 7-18-07, it was stated

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that the solution precursor plasma spray method described by Padture resulted in splats having the claimed size, but were not able to be identified with the processing method used at the time. As such, Padture would meet the claim limitations drawn to the splat diameter.

As set forth in the rejection above, based on the disclosure by Applicant that typical flame spraying devices include a hot and cool zone and the cool zone is believed to contribute to forming non-liquid material for an interpass boundary, it is the position of the Examiner that the precursor material which contacts the cool zone during the plasma spray deposition would inevitably form a resultant inter pass boundary such as claimed and thus the article of Padture would meet the claim limitation.

While the prior art does not disclose or appreciate the potential formation of the resultant inter pass boundary, "the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (FED. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). In *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir./ 2004), the court held that the claimed promoter sequence obtained by sequencing a prior art plasmid that was not previously sequenced was anticipated by the prior art plasmid which necessarily possessed the same DNA sequence as the claimed oligonucleotides. The court states that "just as the

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discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel.” *Id.* (See MPEP 2112 [R-3]). As such, the prior art is seen to meet the limitation of forming at least one inter pass boundary having the recited position.

When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324.

In the alternative, if there is a difference it would be minor and as such would have been obvious.

With respect to claims 19-21 and 29 Padture discloses that the coating is porous and may have a porosity of 16.4% (p. 2253, Results) and since the structure is a microstructure, the pores are considered less than micrometer sized.

With respect to claims 23 and 40, although Padture does not explicitly recite the coating have at least one inter pass boundary, since Padture teaches the same materials and similar method of making employing a solution plasma spray, the thickness of the resultant inter pass boundary would be expected to be within the claimed range.

With respect to claims 26-27 and 47, Padture teaches the coating have at least one vertical crack (p. 2255 – Discussion and Figure 2(a)). Regarding claims 27 and 47, the cracks appear to have lengths equal to the thickness of the coating (Figure 2(a)).

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With respect to claims 28, 30 and 48, Padture teaches the coating thickness may be 250 micrometers and the crack spacing is between 100-300 micrometers which meets the claim limitations (p. 2252 – Processing and p. 2254 – Results and Figure 2(a)).

With respect to claims 31, 34 and 36, the coating of Padture is a thermal barrier comprising a yttria stabilized zirconium oxide comprising 7 percent by weight of yttria (p. 2252 - Processing).

With respect to claims 37-38, 43-45, 50 and 52, as previously set forth above, Padture teaches a thermal barrier coating having splats within the claimed size range, thickness of 250 micrometers, vertical cracks and porosity of 16.4%.

With respect to claim 46, the porosity in the coating of Padture would be three dimensional.

Response to Arguments

Applicant's arguments with respect to claims 16-21, 23, 25-31, 34, 36, 37-38, 40, 43-48, 50, 52 and 63 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's response has overcome the prior rejections under USC 112, however upon further consideration is not clear from the disclosure as filed what one of ordinary skill would need to do in order to form or prevent the formation of inter pass boundaries in the formed material layers without requiring under experimentation and optimization. Furthermore, it is not clear if the claimed inter pass boundary would inherently form

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through the use of any typical flame spraying system which employs a flame having a hot and cool zone. In light of these concerns, the prior indication of allowability of the claims reciting limitations drawn to forming inter pass boundaries has been withdrawn in view of the rejections set forth in the action above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason Savage
8-13-07
/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 1794